EXHIBIT 77

REDACTED

Truthful DRS Design Doc

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Dynamic Revenue Sharing (DRS) was launched in 2015 and achieved great results in increasing publisher and Google revenue by dynamically changing the AdX sell-side revenue share to increase match rate. One known issue with the current DRS is that it makes the auction untruthful as we determine the AdX revshare after seeing buyers' bids and use winner's bid to price itself (first-pricing) when the bid is within the dynamic region. This could incentivize buyers to bid strategically instead of truthfully to achieve better ROI and has been the key concern preventing AdWords and DBM from using DRS.

We would like to adjust the adx revenue share on a per-query basis before collecting buyers' bids, disclose the adjusted pre-revshare reserve price to buyers in the bid requests fairly, and make the auction a clean second-price auction. ████████████████████████████ ██ ██ ████████████████████

The problem statement and proposed solution at a high level can be found at Make AdX Dynamic Revshare Truthful. This design doc will focus on the technical implementation of the first part of the solution - ██████████████████████████████████ Truthful DRS Auction Walkthrough contains more in-depth description of the pricing, payout and debt recollection rules.

Eng: ██████████████████████

Training

Serving
    Building Features
    Making Prediction Request
    Processing Prediction Response
    AdX RTB Targeting
    AdWords Targeting / Auction
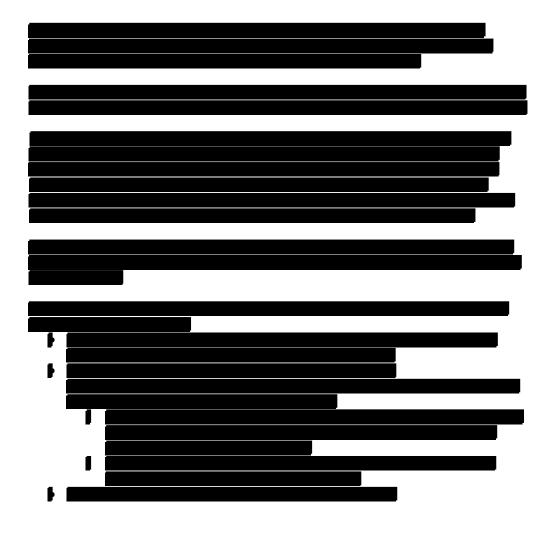   Combined Auction Change

Auction Simulation
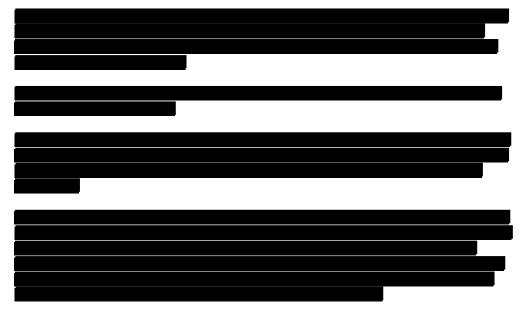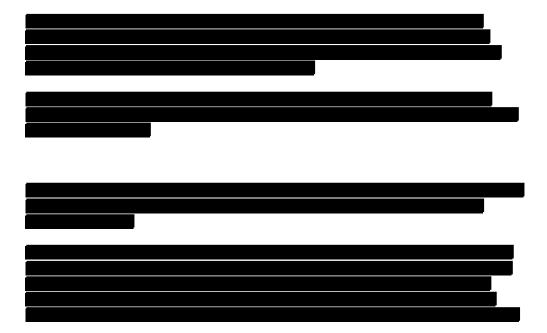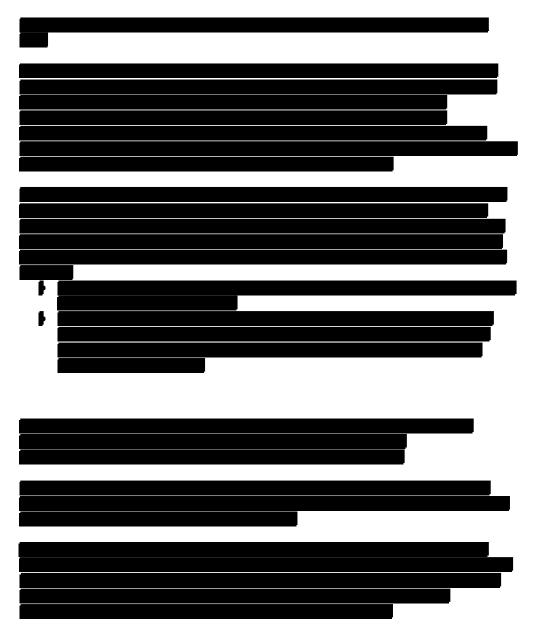
<u>Logging</u>

<u>Future Work</u>

<u>Appendix</u>

   <u>Making Prediction Requests in AdX RTB Targeting Server for RTB</u>

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Tracking bug(s): b/34769853

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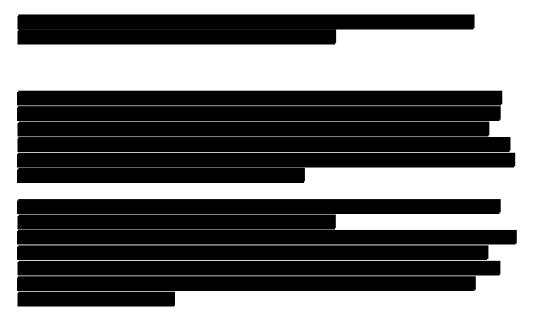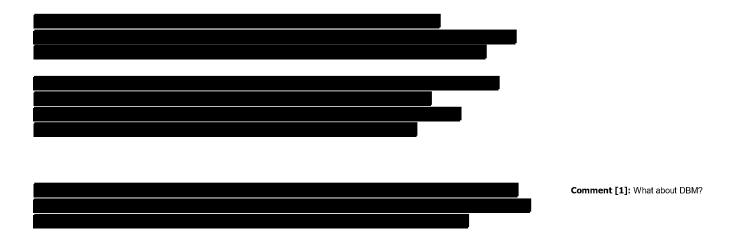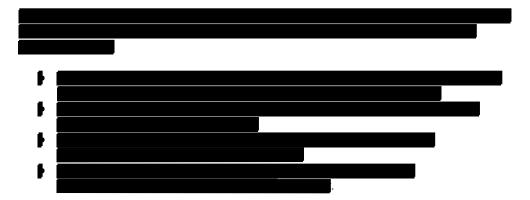
Please go to **<u>Adding DRX Prediction Producers to Supermixer Design Doc</u>** for details on the prediction producer and setting up the new model server.

[REDACTED]

[REDACTED]

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The per-buyer publisher reserve revshare factors map will be stored in BlockSignals, and will then be passed to AdX RTB Targeting Server in adx::TargetingRequest.

[REDACTED]

[REDACTED]

[REDACTED]

Comment [1]: What about DBM?

No changes are reuqired on DBM side as for now. DBM stack currently does not filter out candidate bids below the the pre-revshare reserve prices.

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The lost AdX revshare on these impressions will be recollected from the extra revenue brought by RPO on other impressions, to keep the average AdX revshare at the contracted value (20%).

We will reuse the bank account framework from DRS v2 and will keep balance for each seller (=publisher). When the final publisher sellside revshare is higher than the base_revshare, then we add the amount difference between base revshare and final sellside revshare onto this publisher's account as debt. When there is an impression where the buyer is priced by RPO and the publisher has debt on balance, we will recollect debt by withholding the price gap from RPO price and next highest pricing source from publisher payment. On all other cases (e.g. winner priced by second bid), we will take standard sellside revshare and no change on publisher bank balance. More details at Truthful DRS Auction Walkthrough.
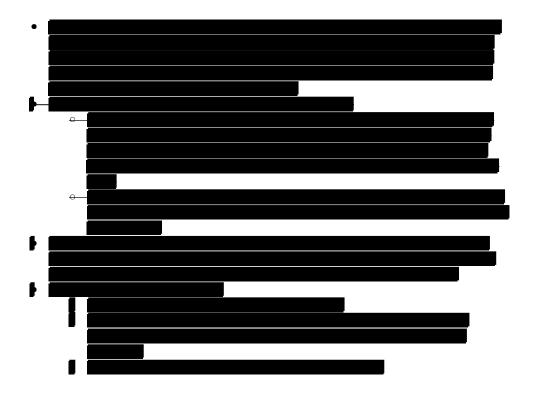
Tracking bug(s): b/26085206, b/36152677
More information on the auction change can be found at Truthful DRS Auction Walkthrough, go/tdrs-auction and go/tdrs-flow.

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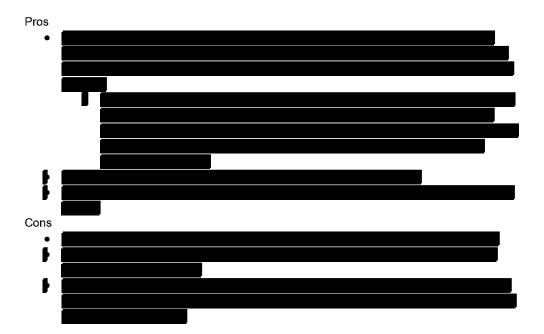██████████████████████████████

Tracking bug(s): b/36052674
Status: almost done

The publisher reserve revshare factor applied to the winning ad and each of the rejected ads will be logged in QSEM's adx_query_state_fields as well as inside AdXForecastingMessage.

See tDRS monitoring and alerts

Pros
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Overall, given that the top 100 buyers account for a significant fraction of revenue and most buyers seem to match after pretargeting, the pros don't seem to justify the extra Eng work and additional resources required.